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LEE & HAYES PLLC
421 W RIVERSIDE AVENUE SUITE 500
SPOKANE, WA 99201

EXAMINER

CHU, RANDOLPH I

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2624

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/714,581	Applicant(s) KESAL ET AL.	
	Examiner Randolph Chu	Art Unit 2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 7/6/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13, 15 and 17-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15 and 17-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1 – 13, 15 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "the resulting correlation value" in line 10. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1, 2, 7, 15, and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by US 7,136,191 to Kaltenbach et al.

With respect to claim 1, Kaltenbach et al. teaches, calculating a calibration correlation value to compensate for an error introduced by a scanning process implemented to produce the scanned image (Fig. 3, 208); determining a correlation value between the scanned image and an original digital image, wherein the scanned image is included in a digital file (Fig. 3, similarity measure, 212); subtracting the calibration correlation value from the correlation value between the scanned image and an original digital image (Fig. 3, ref. label 212, col. 6 line 59 – col. 7 line 9); and generating a signal indicating whether the correlation value exceeds a threshold (Fig 3, 214, 216).

With respect to claim 2, Kaltenbach et al. teaches, determining a correlation value between the scanned image and an original digital image comprises performing a pixel-by-pixel comparison of a property of the original digital image and the scanned image (col. 7 lines 10-36).

With respect to claim 7, Kaltenbach et al. teaches, generating a signal if the correlation value exceeds a threshold comprises comparing a computed correlation value to a predetermined threshold (Fig 3, 216).

With respect to claim 15, Kaltenbach et al. teaches, calibration process comprises: printing a copy of the original digital image (Fig. 1, 11); scanning the printed copy of the original digital image (Fig. 1, 18); calculating a calibration correlation value between the original digital image and the scanned copy of the original digital image (Fig. 1, 18).

With respect to claim 17 please refer to rejection for claim 1.

With respect to claim 18, Kaltenbach et al. teaches, calibrate a calibration correlation value to compensate for an error introduced by a scanning process implemented to produce the scanned image (Fig. 3, 208); comparing properties of an original digital image to properties of a scanned image (Fig. 3, 202) of the original digital image (Fig. 3, 200) to produce a correlation value (Fig 3, 212, 214); subtracting the calibration correlation value from the correlation value between the scanned image and an original digital image (Fig. 3, ref. label 212, col. 6 line 59 – col. 7 line 9); and generate a signal exceeds a threshold (Fig 3, 216).

With respect to claim 19, Kaltenbach et al. teaches, comparing properties of an original digital image to properties of a scanned image of the original digital image comprise instructions that, when executed, direct a computer to perform a pixel-by-pixel comparison of a property of the original digital image and the scanned image (col. 7 lines 10-36).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 3 is rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Chao et al. (US 2003/0215157).

Kaltenbach et al. teaches all the limitations of claim 1 as applied above from which claim 3 respectively depend.

Kaltenbach et al. does not teach expressly that computing a cross-product of the original digital image the scanned image.

Chao et al. teaches computing a cross-product of the original digital image the scanned image (para. [0024] and [0032]).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to determine correlation value using cross product of images in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that it can be used to measure of similarity of two signals.

Therefore, it would have been obvious to combine Chao et al. with Kaltenbach et al. to obtain the invention as specified in claim 3.

7. Claim 4 is rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Glukhovsky et al. (US 2005/0281446).

Kaltenbach et al. teaches all the limitations of claim 1 as applied above from which claim 4 respectively depend.

Kaltenbach et al. does not teach expressly that calculating the variance between a property of corresponding pixels in the original digital image and the scanned image.

Glukhovsky et al. teaches calculating the variance between a property of pair of images (abstract).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to determine correlation value using variance of images in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that correlation between pair of image can be measure by statistical dispersion between images.

Therefore, it would have been obvious to combine Glukhovsky et al. with Kaltenbach et al. to obtain the invention as specified in claim 4.

8. Claim 5 is rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Glukhovsky et al. (US 2005/0281446) and in further view of Cooper et al. (US 5,920,842).

Kaltenbach et al. in view of Glukhovsky et al. teaches all the limitations of claim 4 as applied above from which claim 5 respectively depend.

Kaltenbach et al. in view of Glukhovsky et al. does not teach expressly that calculating a higher-order difference between a property of corresponding pixels in the original digital image and the scanned image.

Cooper et al. teaches calculating the variance between a property of pair of images (abstract).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to determine correlation value using higher-order difference of images in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that higher-order difference could be used to or adapted to improve the signal comparison.

Therefore, it would have been obvious to combine Cooper et al. with Glukhovsky et al. and Kaltenbach et al. to obtain the invention as specified in claim 5.

9. Claims 6 and 11, 12, 13, 22, 26, 27 and 28 are rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Cordery (US 2004/0125413).

With respect to claim 6, Kaltenbach et al. teaches all the limitations of claim 1 as applied above from which claim 6 respectively depend.

Kaltenbach et al. does not teach expressly that computing the sum of the pixel-by-pixel multiplication of a property of corresponding pixels in the original digital image and in the scanned image.

Cordery teaches computing the sum of the pixel-by-pixel multiplication (weighted average) of a property of corresponding pixels in the images (para. [0025]).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to determine correlation value using sum of the pixel-by-pixel multiplication of images in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that its advantage is that it has less computations and is amenable.

Therefore, it would have been obvious to combine Cordery with Kaltenbach et al. to obtain the invention as specified in claim 6.

With respect to claim 11, Cordery teaches computing correlation value to a predetermined threshold comprises comparing the sum of the pixel-by-pixel multiplication (weighted average) of a property of corresponding pixels in images (para. [0025]).

With respect to claim 12, Kaltenbach et al. teaches wherein the property comprises a grayscale value of a pixel (col. 7 lines 56-67).

With respect to claim 13, Kaltenbach et al. teaches property comprises a value indicating a color of a pixel (col. 7 lines 56-67).

With respect to claim 22, please refer to rejection for claim 6.

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With respect to claim 26, please refer to rejection for claim 11.

With respect to claim 27, please refer to rejection for claim 12.

With respect to claim 28, please refer to rejection for claim 13.

10. Claims 8-10 and 23-35 are rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Ishii et al. (US 2002/0131068).

With respect to claim 8, Kaltenbach et al. teaches all the limitations of claim 7 as applied above from which claim 8 respectively depend.

Kaltenbach et al. does not teach expressly that comparing a computed correlation value to a predetermined threshold comprises comparing an nth order statistic between a property of corresponding pixels in two images to a predetermined variance parameter.

Ishii et al. teaches comparing a computed correlation value to a predetermined threshold comprises comparing an nth order statistic (variance) between a property of corresponding pixels in two images to a predetermined variance parameter (para. [0068]).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to compare two images using nth order statistic in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that to determine image quality of output (scanned image) is an appropriate image quality.

Therefore, it would have been obvious to combine Ishii et al. with Kaltenbach et al. to obtain the invention as specified in claim 8.

With respect to claim 9, Ishii et al. teaches property comprises a grayscale (color) value of a pixel (para. [0068]).

With respect to claim 10, Ishii et al. teaches property comprises a value indicating color of a pixel (para. [0068]).

With respect to claim 23, please refer to rejection for claim 8.

With respect to claim 24, please refer to rejection for claim 9.

With respect to claim 25, please refer to rejection for claim 10.

11. Claim 20 are rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Ishii et al. (US 2002/0131068).

With respect to claim 20, Kaltenbach et al. teaches all the limitations of claim 18 as applied above from which claim 20 respectively depend.

Kaltenbach et al. does not teach expressly that compare property of two images comprise instruction that compute histogram representing differences in a property of the two images.

Warnick et al. teaches compare property of two images comprise instruction that compute histogram representing differences in a property of the two images (Figure 2 ref. label 210, col. 5 line 41-col. 6 line 23).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to compare two images using histogram in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that to determine image quality of output (scanned image) is an appropriate image quality.

Therefore, it would have been obvious to combine Warnick et al. with Kaltenbach et al. to obtain the invention as specified in claim 20.

12. Claim 21 are rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Ishii et al. (US 2002/0131068).

With respect to claim 21, Kaltenbach et al. teaches all the limitations of claim 18 as applied above from which claim 21 respectively depend.

Kaltenbach et al. does not teach expressly that comparing a computed correlation value to a predetermined threshold comprises comparing an nth order statistic between a property of corresponding pixels in two images.

Ishii et al. teaches comparing a computed correlation value to a predetermined threshold comprises comparing an nth order statistic (variance) between a property of corresponding pixels in two images (para. [0068]).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to compare two images using nth order statistic in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that to determine image quality of output (scanned image) is an appropriate image quality.

Therefore, it would have been obvious to combine Ishii et al. with Kaltenbach et al. to obtain the invention as specified in claim 21.

13. Claim 29 is rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Uchino (US 2004/0174433).

Kaltenbach et al. teaches calibration module that calculates a calibration correlation value to compensate for an error introduced by a scanning process implemented to produce the scanned image (Fig. 3, 208); a correlation module that determines a correlation value between the first image file and the second image file (Fig 3, 208), subtracts the calibration correlation value from the correlation value to calculate a difference (Fig. 3, ref. label 208,212, col. 6 line 59 – col. 7 line 9); and generates a signal indicating whether the difference exceeds a threshold (Fig 3, 216).

Kaltenbach et al. does not teach expressly that a scaling module that scales at least one of a first image file and a second image file such that the files are of the same dimensions.

Uchino teaches scales at least one of a first image file and a second image file such that the files are of the same dimensions (para. [0089]).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to scale images to same dimensions in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that Comparison of images can be easier when images are in same dimension.

Therefore, it would have been obvious to combine Uchino with Kaltenbach et al. to obtain the invention as specified in claim 29.

14. Claims 30, 34 and 35 are rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Uchino (US 2004/0174433) and in further view of Tanaka (US 4,853,778).

With respect to claim 30, Kaltenbach et al. in view of Uchino teaches all the limitations of claim 29 as applied above from which claim 30 respectively depend.

Kaltenbach et al. in view of Uchino does not teach expressly that dividing an image file into a plurality of blocks, wherein each block includes a plurality of parameter values; and compute an average of the parameter values in the plurality of blocks.

Tanaka teaches dividing an image file into a plurality of blocks, wherein each block includes a plurality of parameter values; and compute an average of the parameter values in the plurality of blocks (col. 1 lines 39-50).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to divide an image file into a plurality of blocks in the method of Kaltenbach et al.

The suggestion/motivation for doing so would have been that comparison can be done in smaller block of image so that load of processor/memory can be reduced.

Therefore, it would have been obvious to combine Tanaka with Uchino and Kaltenbach et al. to obtain the invention as specified in claim 30.

15. Claim 31 is rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Uchino (US 2004/0174433) and Tanaka (US 4,853,778) and in further view of Matsugu (US 6,636,635).

Kaltenbach et al. in view of Uchino and Tanaka teaches all the limitations of claim 30 as applied above from which claim 31 respectively depend.

Kaltenbach et al. in view of Uchino and Tanaka does not teach expressly that applying a threshold to the average of the parameter values in the plurality of blocks.

Matsugu applying a threshold to the average of the parameter values in the plurality of blocks (col. 59 line 64 – col. 60 line 12).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to apply a threshold to the average in the method of Tanaka, Uchino and Kaltenbach et al.

The suggestion/motivation for doing so would have been that binarization threshold value may be set on the basis of statistical processing for a local region.

Therefore, it would have been obvious to combine Matsugu with Tanaka, Uchino and Kaltenbach et al. to obtain the invention as specified in claim 32.

16. Claim 32 is rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Uchino (US 2004/0174433) and Tanaka (US 4,853,778) and in further view of Glukhovsky et al. (US 2005/0281446).

Kaltenbach et al. in view of Uchino and Tanaka teaches all the limitations of claim 30 as applied above from which claim 32 respectively depend.

Kaltenbach et al. in view of Uchino and Tanaka does not teach expressly that calculating the variance between a property of corresponding pixels in the original digital image and the scanned image.

Glukhovsky et al. teaches calculating the variance between a property of pair of images (abstract).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to determine correlation value using variance of images in the method of Tanaka, Uchino and Kaltenbach et al.

The suggestion/motivation for doing so would have been that correlation between pair of image can be measure by statistical dispersion between images.

Therefore, it would have been obvious to combine Glukhovsky et al. with Tanaka, Uchino and Kaltenbach et al. to obtain the invention as specified in claim 32.

17. Claim 33 is rejected under 35 USC 103(a) as being unpatentable over Kaltenbach et al. (US 7,136,191) in view of Uchino (US 2004/0174433) and Tanaka (US 4,853,778) and in further view of Chao et al. (US 2003/0215157).

With respect to claim 33, Kaltenbach et al. in view of Uchino teaches all the limitations of claim 30 as applied above from which claim 33 respectively depend.

Kaltenbach et al. in view of Uchino and Tanaka does not teach expressly that computing a cross-product of the original digital image the scanned image.

Chao et al. teaches computing a cross-product of the original digital image the scanned image (para. [0024] and [0032]).

At the time of the invention it would have been obvious to a person of ordinary skill in the art to determine correlation value using cross product of images in the method of Tanaka, Uchino and Kaltenbach et al.

The suggestion/motivation for doing so would have been that it can be used to measure of similarity of two signals.

Therefore, it would have been obvious to combine Chao et al. with Tanaka, Uchino and Kaltenbach et al. to obtain the invention as specified in claim 33.

Response to Amendment

18. In response to applicant's amendment received on July 6, 2007, all requested changes to the claims have been entered.

Response to Argument

19. Applicant's arguments filed on July 6, 2007 have been fully considered but they are not persuasive.

Applicant's argue on page 20 of the response that the combination of cited art references do not teach "a calibration of process to generate a calibration correlation value to compensate for an error introduced by scanning process implemented to produce the scan image and subtracting that value from the correlation value and comparing the resultant to a threshold".

The examiner disagrees. The prior art of Kaltenbach et al. teaches that the combination of cited art references do not teach "a calibration of process to generate a calibration correlation value to compensate for an error introduced by scanning process implemented to produce the scan image and subtracting that value from the correlation value and comparing the resultant to a threshold". Please see rejection for claim 1 above.

Applicant's argue on page 20 of the response that Kaltenbach et al. does not have a calibration module.

The examiner disagrees. The definition of calibrate is "to determine the correct range for something" and prior art of Kaltenbach et al. does determine correct range of measures and correcting it if it is outside the desired range.

Therefore, the disclosure of Kaltenbach et al. teaches a calibration of process to generate a calibration correlation value to compensate for an error introduced by scanning process implemented to produce the scan image and subtracting that value from the correlation value and comparing the resultant to a threshold, as recited in claim 1.

Conclusion

20. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Randolph Chu whose telephone number is 571-270-1145. The examiner can normally be reached on Monday to Thursday from 7:30 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Samir Ahmed can be reached on 571-272-7413. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RIC/



SAMIR AHMED
PRIMARY EXAMINER